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SUMMER PRUNING THE VINE.

In perusing the American journals, I have repeatedly noticed inquiries relative to summer pruning the vine. In the August number of the Horticulturist a correspondent remarks: "I am getting a great quantity of foliage; shall I cut it away, or shall I let it run?" It seems to me that this mooted question requires ventilating; and as it has not received from authors the attention its importance demands, I propose breaking the ice; and trust that some more competent person will discuss the question *in extenso*.

Now, Mr. Editor, some of your readers will exclaim that that fellow, Al Fresco, has a fresh attack of "Vito mania." I shall plead guilty to the charge, and in extenuation simply remark, that to your humble servant, a vine, like a beautiful woman, is a "thing of beauty and a joy forever." I am not alone in my weakness, for from the most remote periods of antiquity the vine has been viewed as the type of plenty and the symbol of happiness. As the dog, in the animal kingdom, is the friend and companion of man, so may the vine among vegetable productions be said to be his associate and solace; for wherever the Caucasian race finds a home, there also will be found the vine with its welcome shade and tempting clusters. Like man himself, the vine seems designed for cultivation and improvement; it is culture alone which develops the latent powers and qualities which in its wilding habitat are never called forth. Like a weak, dependent thing, we find it in its native woods clinging for support to its fellow-denizens of the forest, festooning their trunks and branches with its beautiful foliage, or hanging in long tangled masses from the lofty boughs. It is this dependence upon extraneous support, and the capability of improvement by care and culture, that calls forth in the true student of nature a more than usual interest,—I may say affection,—for the vine. From no other of the productions of the vegetable kingdom will his care and attention receive a more grateful return than from this, his interesting and pliant nursling. If the cultivation of Flora's gems has an ameliorating influence on the heart of man, removing his thoughts from the cankering cares of the world, the cultivation of the vine is pre-eminently fitted to solace and soothe his wearied spirits.

When the farmer resolves upon the destruction of a hedge-row or nest of brambles, he resorts to summer pruning,—for ex-

perience has taught him, that if bushes, vines, or brambles are cut during July or August, that the succeeding year's growth will be less luxuriant; and that if the same treatment is adopted for several successive years, the bushes and brambles will be *non est.* The laws of vegetable physiology which apply to the bushes and brambles, equally apply to the vine. There are no specific set of laws applying to brambles and another to the cultivated grapevine,—on the contrary, a beneficent Creator has made his laws comprehensive.

Every act of the vine pruner should be governed by and based upon the laws of vegetable physiology; yet how often do we see these simple and admirable laws violated! Judicious summer pruning is absolutely necessary if we wish to obtain perfect fruit; but the disgraceful mutilation of the vine, and the wholesale destruction of the foliage we so often witness, is, to say the least, horticultural barbarism.

That acute observer and accomplished vegetable physiologist, Dr. Lindley, remarked, "That he who would remove from a plant in full bearing a portion of its leaves, with the view of hastening the maturity of its fruit, would be acting with about as much reason as one who should take out part of the lungs and bowels of an animal by way of improving its digestion." But some of your readers will exclaim, "What nonsense! for my vines have grown so long, and the branches and leaves are so thick, that neither sun nor air can reach the fruit; and without sun or air the fruit can not attain perfection." All very true; and persons who allow their vines to arrive at this condition must do so through ignorance or sheer neglect. If the former, they should at once seek information regarding the true principles of pruning and training; but if the latter, they are unworthy to be the possessor of such a plant as the vine.

That acute observer, Cavoleau, correctly remarks: "It is with reason that the leaves are called ærial roots, for they inhale from the atmosphere much more nourishment than the roots do from the soil; they not only fulfill in vegetables all the functions of lungs in animals,—they are also the stomach of the plant, and the aliments which are elaborated in them are decomposed and recomposed like those in the stomach and intestines in animals. Brought to this state of perfection, these alimentary juices descend toward the roots, and in their passage they deposit all the materials necessary to form wood, bark, oil, resins, mucilage, and all the other vegetable principles. In short, it is this descending sap which furnishes to the fruit its juice, perfume, and all that makes it valuable. These effects can not be produced if the leaves are suppressed; and the plant will be weakened in proportion to the extent to which they are removed."

Every leaf is supplied with mouths (termed stomata) upon their under surface; that these mouths perform an important function is beautifully illustrated by the effects of mildew. Mildew usually attacks the under surface of the leaves; the functions of the stomata are arrested, the fruit, if any, fails to color, and usually shrivels and dies; and if the disease is extensive, the vine will be seriously and permanently injured, if not destroyed. Of this I have recently had a practical as well as costly experiment. Owing to the puffing of vito-gasometers, I was induced, in the spring of '67, to plant about 100 "Extra No. 1, two-year-old," "hardy as an oak," vines, called Delaware and Iona. In August, '67, they were attacked by mildew; and not deeming them worthy of the expenditure necessary for the purchase of sulphur, I left them, exclaiming "*Mars omnibus communis.*" They were allowed to "go it" on principle of—

> "Man wants but little here below,
> Nor wants that little long."

The leaves died, the roots followed for want of leaves; and at the present moment I can find but about one dozen microscopic specimens to illustrate the importance of

quantum suff. of healthy foliage. These "grapes for the million" are *pabulum Acherontes* on my light soil.

As an illustration of the importance of leaves, and the action of the descending sap, I would recommend some of your querists to try a simple experiment—as follows: Select on the same vine, after the completion of the stoning process, two branches of the same summer's growth, of equal size and vigor, and each bearing an equal quantity of fruit. Remove from each, near the old wood, a ring of bark one inch in length; then remove from one branch all its leaves, and mark the result. Such an experiment would beautifully illustrate the importance of leaves, and the action of the descending sap.

After the vine has perfected its fruit and developed the buds preparatory to another year's growth, the leaves continue their functions, and the descending sap contributes to the vine a certain amount of nutritive material. This nutritive material is stored up in the roots, and is used to develop new branches and foliage during the ensuing spring. This storing up of nutritive material can be easily demonstrated by carefully removing a vine from the open ground or pot, washing the roots and planting it in sand from which all soluble matter has been removed by washing, and watering the vine with distilled water. A vine so treated will commence growing at the proper season, and continue such growth until the conserved material is exhausted. Such being the fact, leaves are useful for more purposes than perfecting the fruit and developing buds for the ensuing year.

The leaves of plants are the important operatives in the laboratory of nature, maintaining the atmosphere in a state of purity for the support of animal life. Animals, through the functions of respiration from carbonic acid gas,—and plants, through their leaves, absorb it; by some means they separate the oxygen from the carbon; the oxygen being restored to the atmosphere to support animal life, the carbon is appropriated by and changed into woody fiber, and "the so-called hydrates of carbon, sugar, starch, tartaric acid, the coloring matter of the leaves, oil, and so forth, originate under the same conditions. If there are many leaves on the vine, large quantities of oxygen are given off to the air, and so corresponding quantities of grape sugar and wood fiber are formed. Hence it follows that the foliage is needed to nourish the fruit and render it sweet."

In plants of rapid growth, the amount of carbon required is much greater than can be supplied by the roots, such plants are therefore supplied with ample foliage, in order that the materials of woody fiber may be obtained from the air. Hence, by the injudicious removal of leaves from the vine, the branches are not supplied with woody fiber, and fail to ripen. This fact is well illustrated by such vines as the Delaware and Iona. In some localities the foliage is destroyed by mildew, the wood is not perfected, and the frost of the ensuing winter destroys them.

In confirmation of the importance of the leaf in the economy of plants, Liebig correctly states that "The power of absorbing nutriment from the atmosphere with which the leaves of plants are endowed, being proportionate to the extent of their surface, every increase in the size and number of these parts is necessarily attended with an increase of nutritive power, and a consequent further development of new leaves and branches. Leaves, twigs, and branches, when completely matured, as they do not become larger, do not need food for their support. For their existence as organs they require only the means necessary for the performance of the special functions to which they are destined by nature."

In the earlier period of the growing season, the stems and leaves act as a continuous drain upon the conserved resources of the plant and the nutritive elements

contained in the soil; but as soon as the leaves attain a certain state of development, their stomata absorb from the atmosphere certain nutritive principles, as well as elaborate important elements. If the extremity of a branch is removed, and its laterals continuously nipped, the efforts of the vine are directed to the early development of the remaining leaves, and to the rapid extension of branches not subjected to the stopping and nipping process. Upon the stopped branches the remaining leaves attain an unusual development, and have their functional power increased. This increased functional activity is well illustrated in an ordinary vinery where vines are subjected to close summer pruning, or in a tomato plant that has been subjected to the pinching process—the leaves becoming larger and thicker.

The development of roots is to a great extent dependent upon the number of healthy leaves, and as we remove the leaves during the growing period, so do we injure or paralyze the functions of the roots. To illustrate the dependence of the roots upon the presence of the foliage, I need but advise the skeptic to try a simple experiment—that of taking two vines of similar age and strength grown in pots; remove from one all its foliage, leave the foliage of the other uninjured, and at the expiration of two or three weeks examine the roots of both.

It is a fact recognized by all who have made the vine a careful study, that the health of a leaf has much to do with the perfect development of the bud at its axil, and that laterals if vigorous and allowed to grow, interfere with the bud's development. The experienced cultivator who wishes to produce large and perfect bunches, carefully stops the laterals upon the canes intended for next year's crop, and as soon as danger is past of the buds breaking, he removes entirely the laterals upon that portion of the cane intended for fruiting. The importance of removing the laterals is well illustrated by the experience of several writers who have found the best fruit to be produced on laterals, and who recommend stopping the main cane and encouraging the growth of the laterals.

If a cane intended for next year's bearing is allowed to grow to an undue length, the lower leaves usually commence decaying in July or August, to the injury of the buds at their axils, and as a matter of course affect the future crop of fruit. From experience we are convinced that the laterals on that portion of a cane intended for next year's crop should be stopped at the first joints, and as early as safety will justify, entirely removed.

Before the leaves at the base or lower portion of the future fruiting cane have their functions impaired and present an unhealthy appearance, it is advisable to stop the extension of the cane by nipping the end.

Leaves exert an important influence in the nourishment, growth, and ripening of the fruits, and those situated near the fruit a greater influence than those at a distance. As the leaves situated near the base of the stem are liable to have their functions impaired by the extension of the shoot, it is good and sound practice to stop a fruit-bearing shoot at a point one joint beyond the fruit. The leaves left attain a greater size, have their functions increased, and remain green and healthy until autumn. This process of stopping prevents the possibility of the vine being encumbered by an excess of foliage, and forces the vital power of the vine in another direction—that of producing and perfectly developing canes for the next year's crop.

To prevent overcrowding of foliage, and to allow of the necessary extension of the next year's fruiting canes, they should be trained to the top of the trellis, and then right or left, as may be deemed advantageous. By this arrangement air and light will reach the fruit, and the canopy of foliage at the top of the trellis will protect the fruit from the effects of the noonday sun. If the laterals on the main canes

grow too freely, they can be controlled by stopping.

Leaves deprived of light and a sufficient quantity of air can not continue the performance of their functions in a normal manner. This is admirably illustrated in a "let it run vine." If the external masses of leaves and branches are raised, the leaves near the fruit and on the canes for next year's crop will present a jaundiced look—evidence that functional activity is giving place to chemical change. When this condition of things is arrived at, the advocates of "let it run" begin in earnest; they take a huge unwieldy tool called a pruning-knife and slash away right and left; removing the lungs of the vine; expose the fruit to the scorching effects of a midsummer sun; impair functional activity, and seriously injure the roots of the vine.

In our practice, summer pruning the vine consists in pinching or stopping. During the summer months, the vine-pruner should lock up his pruning-knife, and use his thumb-nail for pruning purposes. This doctrine will no doubt be ridiculed by some; but if the vine is subjected to proper winter pruning, the thumb-nail, or at most a small penknife, is all that is required for summer pruning.

As our experience in vine culture is not based upon the experience of to-day nor yesterday, but from observation beginning at an early age, we sometimes fancy that our notions might instruct some of your readers; and if you, Mr. "Horticulturist," are of the opinion that our notions are worth printing, we may at our next attack of vito mania dress our symptoms in the drapery of ink. AL FRESCO.

ORANGE CULTURE IN FLORIDA.

BY D. H. JACQUES.

THE WILD ORANGE GROVES.

MILLIONS of acres of the best land in Florida are covered with groves of the wild orange. How these groves originated is a mooted question. Some suppose that the tree is indigenous on the peninsula; but as no mention is made of it by the narrators of the early Spanish exploring expeditions, and as it is a matter of history that the orange was introduced by the first colonists nearly three hundred years ago, it seems probable that it is of foreign origin, especially as the fruit is known to deteriorate very rapidly and to return readily to its natural wildness, seedlings of the best varieties generally proving worthless. Be their origin what it may, the present existence of these groves has an important bearing upon the prosperity of the State, as we shall see.

The wild orange of Florida is of two kinds—the sour and the bitter sweet. Neither of them is palatable. The tree is very beautiful—far more beautiful than the cultivated varieties—and exceedingly productive. A grove loaded with its golden fruit is a sight one may afford to travel hundreds of miles to see.

ORANGE CULTURE AT ST. AUGUSTINE.

The sweet orange has been cultivated in Florida almost from the first settlement of the country by the Spaniards, in the sixteenth century, but has not till lately become a prominent interest. The earliest groves were at St. Augustine—our "Ancient City"—and constituted for a long time almost the only source of income possessed by the inhabitants. In February, 1835, the "great frost," as it is called, killed every tree to the roots; and not only every orange-tree but every fruit-tree of all kinds in East Florida north of the twenty-ninth parallel of latitude.

Groves subsequently planted at St. Augustine and elsewhere were attacked by the scale insect (*Coccus Hesperidum*), and most of them rendered worthless.

REVIVAL OF ORANGE CULTURE.

Within the last ten years there has been a revival of the interest in orange culture. The scale insect seemed to have ceased its ravages. The groves planted since 1858 have, where any tolerable degree of attention in the way of cultivation has been given them, flourished finely. In fact, some of them are now bearing heavily under almost total neglect.

It is not true, as some have asserted, that the scale insect has disappeared. It is still present in many if not in all groves, but it seems no longer to be capable of its former destructiveness. At any rate, trees planted in suitable soil and properly cultivated do not now suffer in any appreciable degree from its presence, and some of the old groves formerly ravaged by it and rendered unproductive, are now again in bearing.

SOME BEARING GROVES.

Groves of any considerable extent, old enough to be in full bearing, are far from numerous. Three or four on the Gulf coast, and as many in East Florida, are all that I have any account of. That of Mr. Dummet, about thirty miles south of New Smyrna, is said to be the most flourishing and valuable one in the State. The largest one on the Gulf coast is at Fort Myers, and consists of between four and five hundred orange, lemon, and lime trees. It might be made very valuable, but is now in a neglected condition. At Sarasota Bay, a Dr. Snell has a grove consisting of three hundred orange and upward of a hundred fine lemon trees. A gentleman who visited it last winter says that the lemon trees were bent to the ground with their immense loads of fruit, and that the orange trees, though not so productive, had a good crop. *These trees have had no care for the last five years*, and my informant pronounces the grove "a standing monument of the occupant's laziness and stupidity." Dr. Snell does not reside on the place.

NEWLY PLANTED GROVES.

The young groves, planted since the war, are numerous, and some of them extensive. They are generally receiving some cultivation, and where they were properly planted, are flourishing finely. In many cases, however, the planters have manifested the most utter ignorance of the first principles of horticulture, and if they succeed in producing good crops, the result will not be due to any skill in the cultivators, but to the astonishing vitality and recuperative energy of the noble tree they are so shamefully abusing.

PROPAGATION AND CULTURE.

The cultivation of the orange is as simple and easy a thing as the cultivation of the peach, and both thrive in Florida with very slight attention, but would richly repay more care than they are now receiving.

The orange will succeed on any soil in Florida, but on the poorest some manure is required. Good high hammock land, however, is best for it. Such land requires no preparation, previous to planting, except clearing and digging the holes. The plowing may be done afterward, and any low-growing crop planted between the rows.

Several methods of establishing orange groves or orchards have been practiced. Some have procured young trees of the variety desired from a nursery. This is a very satisfactory way where but few trees are wanted, and the planter can afford to pay a very high price for them; but orange nurseries are scarce, and the trees far too high priced for extensive planting. Others have commenced by sowing the seeds of the wild fruit and budding the stocks thus procured with the sweet orange, becoming in this way their own nurserymen. This is a judicious course, as the nursing and budding of the wild stocks are very simple

and easy operations; I am told that in some cases the seeds of the sweet orange have been sowed, and the trees thus procured transplanted without budding. Such trees will no doubt one of these days astonish as well as disappoint their owners by producing a crop of worthless fruit. The course now most commonly pursued in establishing an orange grove is to procure from some neighboring hammock, where they abound, a sufficient number of wild orange-trees of suitable size and transplant them into the ground prepared for the new orchard. These wild stocks may be from two to three inches in diameter. They should be carefully dug up (preserving as many roots uninjured as possible), cut off to within two or three feet of the collar, and then planted in large but shallow holes previously prepared. Twenty feet apart each way, giving 108 trees to the acre, is about the right distance, though some are planting much closer. The wild stocks thus planted will soon put out shoots in abundance, all but two or three of which should be kept carefully rubbed off. Those left may be budded as soon as of sufficient size (which will be within three months) with the variety chosen for cultivation. Some of these budded trees will bear in eighteen months from the time of budding, and all, if properly cared for in the mean time, will be in bearing the third year. The transplanting of the wild stocks may be performed at any time, but the winter is generally chosen for the operation. Some, however, prefer August to any other month, and a gentleman who has had considerable experience informs me that he has transplanted orange-trees in that month when loaded with fruit, and that they have matured their crop in their new location and produced another the next year, as if nothing had happened to them.

But the plan by means of which a bearing grove of the sweet orange can be secured in the shortest possible time, is to purchase land with a good wild grove upon it, and selecting suitable trees at the right distance apart, dig up and remove all the others and graft those left where they stand. These trees will commence bearing the next year, and will soon be capable of producing a heavy crop of fruit.

VARIETIES.

The variety most extensively planted in Florida, I think, is the China, believed to have been introduced into Europe and thence into Florida from the country from which it takes its name. It has a thin smooth rind, and is very juicy. The St. Michael is a sub-variety of the China.

The Portugal or Lisbon orange is nearly round, and has a thick rind.

The Maltese or Blood orange is remarkable for the red color of its pulp. I have seen but few of this variety in Florida.

The Tangerine is a small flat fruit about half the size of the common orange, with a pleasant odor and a very fine flavor.

The Mandarin orange, recently introduced from China, has a fruit much broader than long, a thick rind loosely attached to the flesh, and much smaller leaves than the other sorts. It is classed by some as a distinct species (*Citrus nobilis*). It is one of the best kinds.

FACTS AND FIGURES.

The cost of planting an orange orchard must vary greatly in different localities, depending partly upon the original condition of the land and partly upon the expense of getting the trees from the wild grove. Formerly the wild trees were considered as free to everybody, and people wishing a few to plant dug wherever they pleased; but now they are beginning to have a market value. It is not in all cases convenient or possible for a person to buy land with wild groves on it. A certain sum, then, must be allowed for stocks.

One gentleman with whom I am acquainted, and who has already planted several acres, estimates the cost in his case as only $25 per acre. He does not, how-

ever, include the cost of clearing the land. I estimate as follows for ten acres of fresh hammock land with its natural forest growth upon it:

Cost of ten acres at $10 per acre	$100
Clearing and preparing	250
Inclosing with rail fence	200
1,000 trees at 25 cents each	250
Planting and budding	100
Incidental	100
	$1,000

The use of the ground for other crops will fully pay for all the cultivation the grove will require for the first three years, after which there will be an income from the grove itself.

With regard to the productiveness of the orange-tree, it is impossible at present to arrive at any very satisfactory conclusion. This is partly because there has been no systematic mode of culture pursued, and the real production has varied greatly in different groves; but mainly because people in Florida never weigh, measure, or count anything, and really have no idea how many oranges one of their trees produces. Some of the old trees at St. Augustine are said to have produced annually at least 8,000 oranges each. Mr. C. F. Reed, of Mandarin, on the St. John's River, gathered 12,000 from three trees last year, one tree bearing 3,200, another 3,300, and the third 5,500. I have been told that thrifty trees sometimes bear as many as 1,000 oranges the third year from the bud, but such productiveness I think must be rare. The conclusion I have arrived at, from personal observation, is that a well-planted and properly cultivated grove at ten years of age will average 2,000 oranges per tree. Taking one half of this, however, as a basis of calculation, ten acres will produce 1,000,000, which, at $25 per thousand, the *lowest* price of the last season in Jacksonville, amounts to $25,000. The crop of the present season has in some cases been bargained for in advance for $25 per thousand at the grove.

Florida oranges are the best in the world, and will always command the highest price in all markets. Some of the best were sold in Jacksonville during the last winter as high as $50 per thousand.

It should be observed here, that north of the twenty-eighth parallel of latitude, crops are occasionally cut off by frost; but a total failure from this or any other cause is rare.

GLEN EVERGREEN, NEAR JACKSONVILLE, FLA.

LARGE STOCK OF SMALL FRUITS.—Our West Jersey friends have had it all their own way with the small fruits for several years past, but they must look well to their laurels, or other sections of the country will take the lead. Parry, Collins, Andrews, and several others, have talked about their hundred acres of small fruits, and many of us began to look upon them as the aristocrats of the profession; but lately a few of our Northern fruit-growers have let us know that they are also getting up among their hundreds.

Purdy & Johnson, of Palmyra, N. Y., and Purdy & Hance, of South Bend, Ind., announce that they have 150 acres of small fruits. Well, this looks like business, and as though the time would soon come when everybody could get at least one dish of berries during the season.

We understand that Purdy & Co. have planted largely of the Black Raspberry, and we would advise others to do the same, as it is a safe investment, and all the varieties are hardy and bear abundantly. Besides this, they can be always shipped to market without loss by being crushed, and they seldom become moldy, even in damp, hot weather, as is often the case with the red varieties. If there should ever come a time when the market is overstocked, then the fruit may be readily dried, and it always commands a good price in that state. —*Whitlock's Recorder.*

GRAPE LEAVES.

An examining trip among acres of vineyards in association with scores of grape-growers, and the frequent question of "What is this variety?" put by many a vine-grower, caused us to think somewhat of the requisites of distinctive markings and detection or knowledge of varieties by means of their foliage. With the older and generally cultivated sorts, as Isabella and Clinton, the leaf has become so well known that few have to see the fruit before deciding on the variety; but with those of more recent introduction, although many of them are largely grown and widely distributed, yet knowledge of them seems known only to comparatively few, except by means of the fruit.

Referring to the books, we find in description of varieties that while the size of bunch, form and color of berry, etc., are depicted, it is rare to find the foliage even mentioned, and the vine itself more than remarked upon as hardy or tender. As foliage is a very important item in the making up of a good grapevine to meet the great extremes of our climate, and as a knowledge of it in connection with varieties would often serve to assist in deciding upon the identity of a sort, even without the fruit, we suggest that more care and attention be paid thereto by describers of new sorts, as well as the makers of books.

Fig. 90.—*Leaf of the Adirondac.*

To assist in the work, we have carefully gone over a number of varieties, made some outlines of leaves, and description of the color of leaf and leaf-stalk as they appear to us. We may not be strictly correct, but as we propose this as initiatory for further knowledge by others, we

are perhaps near enough the truth. We shall be pleased to receive from any and all grape-growers and horticulturists ideas and corrections, and trust we may end in being enabled to see a written description of any variety so that it can as readily be detected in foliage as in the fruit.

Our drawings have been made from mature leaves, and exhibit the general form of the variety. Commencing with Adirondac, we find the first growth or young terminal leaves a pale yellow green, and changing very soon to a dark sea green, and greenish white woolly beneath. Leaf-stalks dull reddish, a little moldy.

Next, the Catawba has leaves at first of a light pale green, changing at maturity to a rich yellowish grass green, and

FIG. 91.—*Leaf of the Catawba.*

underneath yellowish woolly. The leaf-stalk greenish, a little with red next the leaf or when fully exposed to the sun.

The Concord has leaves at first of a bright grass green, becoming a very dark sea green at maturity, and yellowish woolly white underneath. Leaf-stalk dull green.

The Delaware at first is of a light yellow pea green, and at maturity a dark yellowish green, yellow green beneath. Leaf-stalk green, becoming bronzed at maturity.

Diana Hamburgh has foliage at first light yellow green, changing to a dark grass green at maturity, light pea green beneath. Leaf-stalk green, tinged on the upper side with a brownish red.

Elsinborough has foliage of a dark rich pea green, with green leaf-stalks, until they are very mature, when they become bronzed.

The Hine has leaves of a light yellow green at first, changing to a rich dark grass, almost sea green, at maturity, the underside *slightly* shaded with the white woolly character of its—*labrusca*—class. The leaf-stalks are green, becoming bronzed at maturity.

Hartford Prolific has leaves a light sea green at first, and changing a sea green when mature; greenish white underneath. Leaf-stalk a bright red.

The leaf of Iona at first is a light pale yellow green, becoming a light sea green at maturity, woolly white beneath. Leaf-stalk pale red or pink.

Israella has a leaf of a light yellow green at first, but soon changing to a dark rich sea green; the underside greenish,

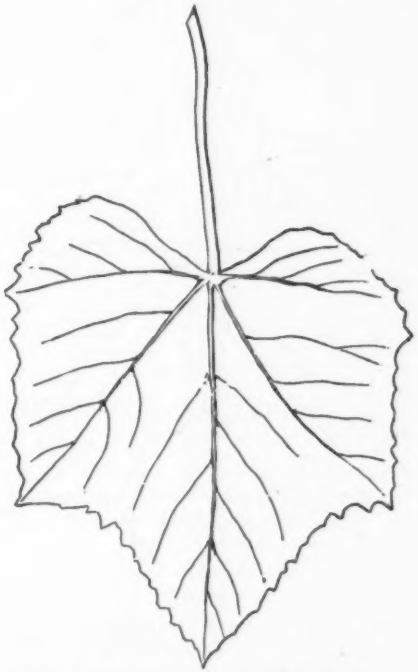

FIG. 92.—*Leaf of the Concord.*

slightly downy or woolly, of a yellowish white shade. Leaf-stalk dull reddish green, with a slight mold or bloom.

The foliage of Ives' Seedling is at first light green, but soon changes to a deep rich dark green, while the ribs continue prominent of a light green color. The underside is woolly and yellowish. The leaf-stalk is moldy, of a reddish brown midway, but green at each end.

Laura Beverly, a new Canadian candidate for favor, has foliage of a light yellow grass green at first, becoming, when mature, a dark rich sea green, light green beneath, with a slight yellow muddy tinge. Leaf-stalks reddish.

Maxatawney is at first light yellow green, becoming very dark rich sea green; dull greenish yellow white underneath. Leaf-stalk red.

Miles has foliage light pea green at first, becoming dark yellowish green, quite white underneath. Leaf-stalks at first downy green, becoming bronzed or a dark dull red.

Mottled is at first a clear dark pea green, becoming at maturity quite dark, and very old leaves changing to a yellowish tint; underside white woolly. Leaf-stalks bronzed.

The Sherman has foliage a light yellow dark green, and green underneath. The leaf-stalks dull reddish and a little hairy.

Telegraph is at first a pea green, becoming a dark sea green, with rough whitish

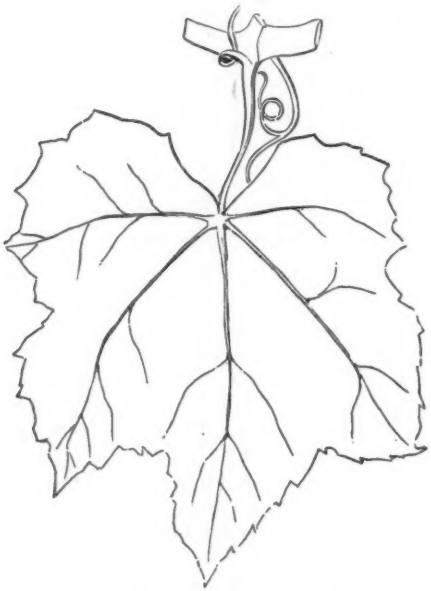

FIG. 93.—*Leaf of the Iona.*

mold or woolly beneath. Leaf-stalk green.

To Kalon is a yellow green, and retains its yellow tinge at maturity; underneath slightly woolly. Leaf-stalk green.

The Weekawken leaves are at first a light yellow green, and pea green at maturity, smooth beneath. Leaf-stalk reddish brown.

We have many more notes and drawings of foliage; but, as we have said, our object is to draw attention toward some method of more surely detecting varieties by means of foliage, and the present is sufficient, we hope, for the purpose. If the grape-growing societies would take up this matter and appoint committees toward its completion, and have these committees

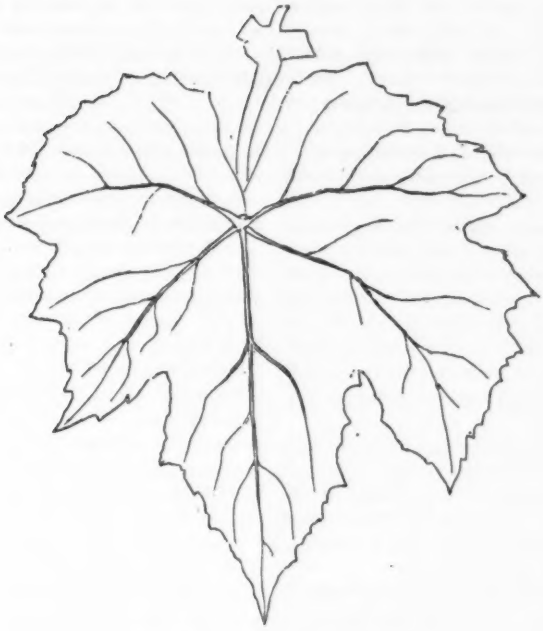

FIG. 94.—*Leaf of Ives' Seedling.*

confer with one another, and then submit the joint conclusion to the American Pomological Society for a final report and record, we should count them as doing a work of great value to the grape interests and horticulture at large.

BURYING PLANTS DURING WINTER.—A writer in the London *Florist and Pomologist* gives an account of his experience in wintering geraniums by burying them in a trench under ground, below the reach of frost. The result was quite successful, only two plants out of fifty having decayed when dug out the last of April. The trench should be made in a location where no water can remain at a depth of two feet below the level—that being the depth at which the trench ought to be dug—the plants laid in by the heel in a row, then covered with straight straw, set so as to carry off water, and then covered with earth, according to the climate, to a depth sufficient to keep out frost; finishing off in a ridge or roof shape to carry off water. Covering the plants over the straw first with boards set in a ridge form and then heaping on earth, we think, would render pressure less liable, and tend to keep a more open circulation in the trench, and thus lessen the liability to damp or decay; but with a little care in this way, we see no reason why any half hardy plant may not easily be kept over winter in this manner.

NOTES OF SOME OF THE EARLY HISTORY OF FRUIT CULTURE IN THIS COUNTRY, WITH RECORDS OF THE PROMINENT EARLY ACTORS AND ABETTORS.

One of our leading horticulturists has long been and is now gathering material for a record of the history of fruit culture in this country, together with short accounts of the most prominent men whose liberal minds and energetic actions have assisted in originating, introducing, improving, and disseminating the choicest fruits of the earth so widely and so cheaply that there is no man, owner of a half-acre lot, so poor but he can and does grow some of them.

We have been permitted, at this time, to make a few extracts from the compiler's collection, and hope to get liberty to continue them, as we believe all that relates to our pomological history will be received with pleasure by our readers.

"The earliest nursery of trees for sale in this country (according to William R. Prince, of Flushing, N. Y.) was established in 1732, by his great-grandfather, William Prince, and it was by him that the Newtown Pippin apple was extensively propagated and disseminated. His footsteps were ably filled by his son, William Prince, whose fair and honest dealings were proverbial and yet in the memory of many people, as the trees of his growing are yet in their orchards, yielding fruit correct to name. * * *

"The first nursery established in Massachusetts was at Newton, by —— Kenrick. The first in New Jersey was by William Coxe, and the first in Maryland by William Sinclair. * * *

"One of the most liberal of the early pioneers of horticulture in Maine was Benjamin Vaughn, who in early life was a member of the British Parliament, but for republican sentiments expressed, was censured, and at the close of the Revolutionary war he settled at Hallowell, where he imported, propagated, and distributed freely trees, plants, and seeds, contributing largely toward diffusing a taste for fruit culture. Ephraim Goodale settled at what is now the town of Orrington, Maine, in about 1808, and at once planted an orchard and a nursery, sparing no trouble or expense toward obtaining the best fruits then known, and freely distributing his knowledge in aid of others.

"The old cherry-trees just out of New Haven, Conn., so well known by many horticulturists—the Black Heart, Honey Heart, May Duke, etc.—were, some of them, planted in 1775 by Benjamin Douglass, a lawyer of New Haven. Fruit by the bushels was gathered in after years from the May Duke as early in the season as the 10th of June.

"Jonah Hotchkiss in 1780 introduced grafts of the Delancey pear from Red Hook, Long Island; and as he brought no name with the grafts, it took the one of Jonah, by which many persons yet recognize it.

"Nathan Beers was a nurseryman previous to 1779, and cultivated many choice varieties of fruits yet counted as among the best—St. Michael or White Doyenne, Catherine, etc.

"Nathan Beers, 2d, followed the occupation of his father, dying in 1849, at the ripe age of seventy-nine years.

"Timothy Dwight, President of Yale College, was the first to cultivate strawberries and assist in bringing them into gardens as a valuable fruit.

"James Hillhouse, a lawyer by profession, cultivated fruit largely, and at one time received a large collection of apple and pear grafts from the king's garden, in France. To him especially New Haven owes the noble elms that adorn many of its streets, for he assisted in planting them.

"Henry W. Edwards, at one time Governor of the State, planted pear seeds in 1817, from which sprang many new sorts that are now of high repute, as Henrietta, Dallas, Elizabeth, etc.

"Noyes Darling was a man of enthusiasm in fruit culture, and gave great attention to insects and diseases of fruits. His researches have been in part published."

Skipping over a number of records, we find—

"David Thomas as early as about 1810 was propagating and disseminating trees and plants in western or central New York, and that about 1820 or '21 he had quite an extensive nursery."

The extent and value of his teachings are yet well known and remembered with warm and kind appreciation in all of western New York, and even into other States, where he is at this day quoted as authority in principles of cultivation as well as in correctness of names.

As we said, we hope to be able hereafter to continue these notes ere they appear in full, as now proposed.

PEARS—FELIX DE LEIM AND CADETTE DE VAUX.

The outlines and descriptions of these pears we now give more to draw attention of pear-growers to them, than to advise their planting. It has been said they might possibly prove identical with varieties known under other names, but if so, we have yet to learn. They are both foreigners.

Fig. 95.—*Felix de Leim.*

Fruit, medium size; oblong pyriform; pale greenish yellow with faint marblings and shades of russet, and scattered dots at calyx end, surface having a rough feel; stem, slender, planted on one side with a slight depression; calyx, with narrow long

segments, completely reflexed; basin, round, small, shallow; core, small, with a granulous outer line; seeds, plump, obovate pyriform, blackish; flesh, white, buttery, juicy, melting, vinous, sweet. Season, late autumn.

The fruit of Cadette de Vaux is large or above medium, of irregular obovate ob-

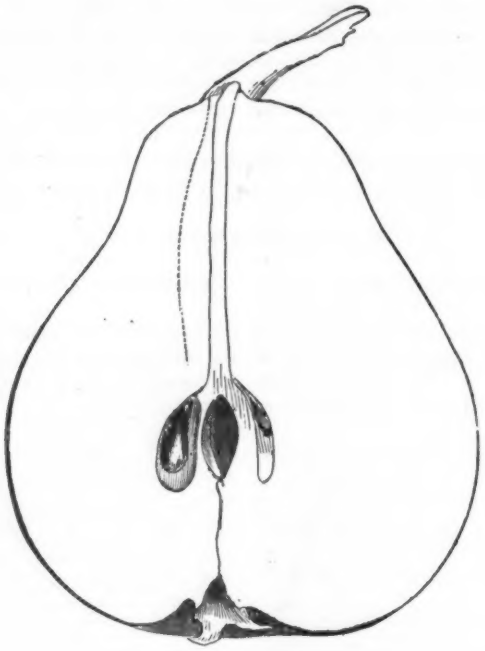

Fig. 96.—*Cadette de Vaux.*

tuse pyriform shape, greenish yellow, with suffused green dots; stem, rather stout and fleshy at base; calyx, large and open, with long, completely reflexed, segments; basin, shallow; core, small,—center, hollow, and the capsules partially hollow; seeds, light brown, long pyramidal and pointed at both ends; flesh, breaking, almost melting,—sweet, juicy, aromatic. Season, winter.

Potatoes.—An extensive potato-grower tells us he has found the Early Rose to mature early and perhaps fully maintain its character, but that, side by side, his crop of Massachusetts or Jackson Whites was more productive. A variety that he has under name of Shaw—a smooth, even tuber—he, however, considers best for table, while a new sort, called Lottridge, gives promise of having the qualities of earliness, goodness, and productiveness in greater degree than any other variety.

MODEL FRUIT CROPS.

BY THE AUTHOR OF "TEN ACRES ENOUGH."

THE attentive reader of our numerous agricultural journals can not have failed to notice that about the close of every fruit season a multitude of powerful stories find their way into the aforesaid journals, touching incredible crops which certain parties have gathered from one, two, or three acres. But the agricultural papers have no monopoly of these interesting details. The writers for the political dailies and weeklies are also found to temper their vitriolic partisanship with an infusion of horticultural information. I notice that these gentlemen almost invariably close their inflammatory accounts of a tremendous crop with exhortations to the reader to go and do likewise. A taking paragraph once set afloat by the press, travels on the wings of the wind, and is quickly spread before a million of readers. Like all other attractive stories, its marvels multiply by repetition, sometimes by accident, sometimes by design. A careless proof-reader drops a figure here, or a knavish one will add another there, either of them doubling the original result. Thus exaggerated, it acquires a new popularity for all lovers of the sensational, and yet it will generally wind up a long career of travel without question or contradiction. The uninitiated believe implicitly, and become impatient to imitate; but the experienced reader will only deprecate the original error, and lament the consequences.

By this extensive publication of those extraordinary successes which certainly do occasionally occur with fruit-growers, the bright side only of the question is presented for public consideration. No one makes proclamation either of his own failures or of those of his neighbors. On the contrary, most of us are impatient to become bearers of good news. It is an infinitely more grateful office than the bearing of evil tidings. Hence the competition to report in print the earliest information of any exceptionally large crop, and the newspaper silence touching the equally exceptional small ones. The successes work encouragement to the downhearted, but the failures depress them still further. Either way, our sympathies are contagious.

I do not mean to reproduce the ample catalogue of overgrown stories of the present season, though many such have fallen under my notice. But two or three are worth reciting as illustrations. A leading monthly informs us that Mr. G. H. Baker, of Illinois, produced 253 bushels of the Albany Seedling Strawberry from one acre, "by simply running a narrow one-horse plow in furrows three feet apart, cutting off the weeds with a scythe, and giving him a clear profit of $1,509 for the one acre." Then an Eastern paper assures us that "Mr. Augustus Parker, of Grove Hall Avenue, Boston, picked 4,800 boxes of the same strawberry from an acre and a half of ground within ten days, and estimated that the unusual heat of three days dried up a thousand boxes on the vines. He sold the 4,800 boxes on his premises for thirty-five cents a quart—or $1,680 for the acre and a half. There may have been more animating instances of success placed on record the present season, but none such have come under my notice. Nor do I mean to doubt the truthfulness of the foregoing. But these results are far in advance of any in New Jersey, so far as my knowledge extends, as the greatest profit realized from an acre of strawberries, so far as I know, did not exceed $512, though I have known great fields of them to clear

$312 per acre. The past season has been one of unaccountable disaster to some of us. On one farm, very profitable crops of strawberries have been secured, while on that adjoining, the failure has been almost total. Such alternations, however, are inseparable from fruit culture; and as with grass and grain, it is the average income of a turn of years which should determine the measure of annual profit.

But I took up my pen to put on record a crop almost as remarkable as either of the foregoing. In the suburbs of this city there is a well-grown peach orchard, containing 2,600 hills of the Dorchester Blackberry. These are set about fourteen feet apart, and in the same row with the trees, the rows being also fourteen feet asunder. They were planted in the spring of 1864. If they had been set in a field by themselves, as blackberries are usually planted, they would occupy exactly two and a half acres. When set out, two plants were put in each hill. From these 2,600 hills, the owner, Mr. John Mitchell, this season gathered and sold fruit to the amount of $2,365 90. It was all disposed of by one agent in New York, from whom net returns were received amounting to $2,057 64. The number of quarts was 5,121; average price 46 cents; cost of picking at 2½ cents, $128 02, leaving $1,959 62 clear. I have heard of even larger gains having been made per acre from the cultivated blackberry, but they were not sufficiently well authenticated to be relied on. The figures just stated I know to be correct. They can be verified to the satisfaction of all who doubt them. The previous history of this field is as follows:

1865.	Product paid for tillage.		
1866.	Product, with low prices.....		$600 00
1867.	do.	.....	1,300 00
1868.	do.	all clear.....	1,959 62
			$3,859 62

From this total must be deducted the cost of picking the crops of 1866 and 1867. It would be given now, but there are no means of ascertaining it. It probably did not exceed $159 62, leaving $3,700 as the clear net product of four crops, or $740 per annum for the five years during which the ground was in use. But during the first two years the portion between the rows was cropped with pickles and tomatoes, and the peach-trees were coming into bearing. In addition to these gains, great quantities of suckers have been dug and sold. So many were taken up last fall and this spring, that Mr. Mitchell is of opinion he would have had one fourth more berries had he done no digging.

Now then for details and explanations, such as are essential to a full understanding of the merits of the case. The land on which these crops were grown was cleared of pine timber the winter before planting the blackberries. It was not cleared up very carefully, and the plowing was done through the stumps. A shovelful of barnyard manure was put in each hill when the plants were set. There has been no manure applied since, except to the tomato and pickle crops between the rows. The blackberries have thus had no other fertilizer than the decaying stumps and rubbish of the new land. The soil is an exceedingly light sandy loam, and as it has no farm buildings, would not sell for more than $125 per acre. It is unfit for a grain crop, but is pronounced by Eastern men, who do not understand its peculiarities, as of no value whatever. But, though in appearance so unpromising to them, it is the very description of soil which we prize most highly. It will produce all the berries in perfection. No soil can exceed it for melons, sweet potatoes, tomatoes, and asparagus, all staple crops with us. What it does for blackberries is seen by the dollar marks above.

Taken altogether, this two-and-a-half-acre field may be regarded as a very profitable investment. But the extraordinary blackberry crop of this year must be regarded as an exceptional one, not to be depended on as certain to be realized annually. In stating the profit, I desire to

explain why it has been so much larger this year than at any time before, as well as why it can not be expected often in the future. The naked statement would be likely to hold out unfair inducements for others to rush into the same business, while a full recital of the causes of success will materially modify such impetuosity. Moreover, the yield per acre was so far in advance of what the most successful growers of blackberries have been able to realize in this neighborhood, that I was myself anxious to understand why it had been secured this season for the first time.

The reader knows that the past winter was one of unexampled severity, and that under the long continued cold the fruit buds of all kinds perished. No such winter has been experienced here since the settlement of New Jersey. All our large fields of Lawton Blackberries were killed to the ground, except such as happened to be growing either in peach or apple orchards. The like destruction from cold had never been known. We had no other blackberry in extensive cultivation, as the Wilson Early has not yet been so multiplied as to affect the market for fruit, much less to fill the gap occasioned by the extirpation of an old standard like the Lawton. The Kittatinny is not largely grown here, though it came out of the winter uninjured. Of the Dorchester there are even fewer plants, and no extensive field of them, the largest being that of Mr. Mitchell. Hence the supply of blackberries was cut off, and the few whose plants were growing under some kind of protection were the only parties who had fruit for market. Two of my neighbors, whose Lawtons were protected by trees, had good and paying crops, and such plants as were sheltered by garden fences bore as abundantly as ever. The market being thus almost bare of fruit, those who were fortunate enough to have full bushes secured a golden harvest. Prices averaged higher, for the season, than we have ever known. Mr. Mitchell was one of these fortunate men. His Dorchesters were effectually protected by the overhanging trees, and he marketed the best crop he ever gathered. Whether his plants would have escaped without protection I am not prepared to say; but my impression is they would have been uninjured by the cold, as others, having the same plant growing without protection, gathered good crops.

BURLINGTON, N. J.

DISTANCE APART FOR ORCHARD TREES.

WE are gradually progressing and yearly learning to better and better understand our climates and soils, our trees and vines; and as we progress and come to know our own, we throw away much of the early-day teachings that were brought to us from across the broad ocean. Our vine-growers commencing with their vines at three to four feet, have gradually expanded them, until now the majority of planters give to them eight by ten or ten by twelve, and some even more, according to the soil and the habit of the sort. So, also, beginning with severe winter and summer pruning, from which they obtained a little fruit, sun-burnt and half ripened, and produced various diseases in the system of the vine, they have come to a knowledge of the vine's nature, and by almost leaving it alone are rewarded with luscious fruit and healthy foliage. In the apple and pear orchard we have been brought to place the first from thirty-five to forty feet apart, and the latter twenty-five to thirty, thus subjecting them to all the terrible burning heat of the sun's rays, in a long, hot

summer's drought, and to stand as it were alone, and brave singly the storms of wind that winter and spring bend their tops, and crack and tear loose by leverage their roots.

We have long been impressed with the view that these old advices of distance were erroneous, and our readers will bear us witness that we have before now advised a closer planting, and as a break, also, and aid toward shielding our fruit-trees, the intermingling more or less in the orchard of evergreens.

Our own practice has been most successful in apple orchards at twelve by sixteen feet, and we have known the best results from a like distance by some extensive orchardists in the West. The past two years we have doubted if even this distance had not better be reduced, and in exposed, bleak, wintry situations, on prairies or bluffs, we are satisfied it had. The closer trees are planted to each other, the more do they assist each other in breaking the force of the wind, and in gradually ameliorating the climate. They will sooner shield and shade the ground and their roots; retaining thereby a greater relative proportion of moisture and food, they will come sooner into maturing and fruiting their blossoms; and as they increase in size will acquire the rough bark that comes with maturity and belongs to them in health, so that as they become too thick for the light to keep them round and full in the contour and extension of branch, they will be the better enabled to stand alone, while the fruit that has been gathered from the trees requiring removal will be found to have more than repaid the first cost of the whole orchard.

Were we to plant an apple orchard today, we think we should set our trees ten by fifteen feet, and if of standard pears ten by ten feet, if of dwarf pears or apples six by eight feet, and we would use occasionally an evergreen tree of some hardy variety in the place of a fruit-tree.

MOISTURE AND TEMPERATURE IN PLANT CULTURE.

A HEALTHY and vigorous growth of plants in green-houses is dependent so much upon a proper degree of temperature and atmospheric humidity, that he who would be a successful cultivator must be a close observer, and devote much time and attention to the subject to secure the proper conditions for success.

Plants may have a congenial soil, a proper amount of root moisture, and yet suffer from aridity, humidity, or a lack of proper temperature of the atmosphere in which they grow. The thermometer gives the actual temperature of the air; but all observing persons will acknowledge that we require some means of ascertaining the amount of moisture or the sensible temperature due to evaporation. We enter a proper regulated green-house, with a temperature of 65°, and feel a greater degree of warmth than in our furnace-heated dwelling at 70°, for the reason that in the latter we have abundant moisture, while in the former not enough for comfort or health.

Scientific men have made hygrometry a careful study, and it is due to their efforts that we have the hygrometer. This instrument, as ordinarily constructed, requires a somewhat intricate calculation to arrive at the amount of moisture contained in the air at different temperatures; and elaborate tables were constructed, which obviated the difficulty to some extent.

A Mr. Edson has lately invented an instrument which he calls a hydrodeik, which

is manufactured by N. M. Lowe, of 103 Court Street, Boston, which is so simple in its operation and indications as to be within the comprehension of almost every person.

Fig. 97.

Our figure shows the general form of the instrument, which is not self-acting.

The pointers may be moved by means of the knob in front, as per following directions:

To find the actual temperature, read the right-hand or dry bulb thermometer.

To find the sensible temperature, or temperature due to evaporation, read the left-hand or wet bulb thermometer.

To find the relative humidity, take hold of the small knob in front of the instrument, and raise or lower it as the case may be until the upper edge of the right-hand adjusting pointer coincides with the surface of the mercury in the right-hand thermometer; then, by turning the knob to the right or left, bring the upper edge of the left-hand adjusting pointer to the surface of the mercury in the left-hand thermometer. The instrument is now adjusted, and the relative humidity, dew-point, and absolute amount will be indicated by the dial and index hand. Thus observing upon which of the nearly vertical lines the end of the index hand rests, let the eyes follow this line to the top of the dial, and there will be found numbers which give the per cent. of humidity sought.

Observe upon the dial the diagonal line upon which the end of the index hand rests. Let the eye follow it down to the right of the dial, and there numbers indicate the dew-point sought.

Upon this line also are two sets of numbers, one of which gives, in grains and tenths, the weight of water (in form of vapor) in each cubic foot of air. The others give in inches of water the force of vapor.

The use of the hygrometer will show why stoves, now so generally in use, are injurious to health from the excessive dryness of the air which they produce in a room, causing moisture to evaporate too freely from the skin, with all the painful consequences to the general health of those who come under their influence. The use of stoves for heating green-houses has been long discarded, from the aridity of the atmosphere produced, as well as from the escape of noxious gases, the product of combustion of the fuel used. A difference of from six to eight degrees between the reading of the two thermometers, or about 60° of humidity, according to Edson's instrument, will be found to produce or to accompany a pleasant degree of moisture in a room. In the culture of plants in glass houses, some species will require more humidity than this.

We presume that most superior gardeners are well acquainted with the nature of the proper climates of their plants. At any rate such knowledge is necessary for their proper treatment, not only as to temperature, but also as to moisture. If this knowledge is not possessed by the gardener, his employer should be familiar with it; and then, provided with such instruments as the hydrodeik and a self-registering thermometer, he will be enabled to ascertain if the plants have been properly cared for in his absence. How often do our green-house plants become shriveled or weak before we have the least suspicion

that there is any alteration in the moisture of the air! Then, as soon as we become aware of the fact, we drench them with water without taking their actual requirements into consideration. On the other hand, if we fancy from our own sensations that the air of our green-house is dry, we sprinkle water about without measure. Mr. Glashier, an English author on meteorology, observes, "that our sensations with regard to heat and humidity are very fallacious guides. Every one must have felt in summer the heat to be at times almost unsupportable, without any apparent reason, as shown by the reading of the thermometer. This happens when the air is nearly calm and *moist;* the air is already so moist that it can not take off our own moisture as we give it off in perspiration, and so we say it is sultry; but only let the air get in motion, if only by means of the Indian punkah or huge fan swinging about, and then we feel cool and experience relief. Yet the same hygrometric condition exists. It is only a very small amount of vapor and heat that we force the air to take from us by the process. But should the air get *drier* with the same temperature, then evaporation from the skin takes place with great activity, and we feel a marked sensation of cold, and this result is as great a fallacy as the former. The fact is, that with the same temperature, and enjoying an equal state of health, we experience, according to our mere sensations, various changes of temperature, and so our senses can not guide us with regard to heat and humidity as far as our own health is concerned, and much less with respect to that of our plants. Therefore the hygrometer, properly used, and its indications attended to, may be made the means of preserving many valuable plants which might otherwise perish in an ill-regulated atmosphere. In our gardens our tender plants are sometimes endangered by changes in the hygrometric condition of the air. Abundant dews at this season are often connected with white-frost, which may prove disastrous to the plants. Now, if we consult the hygrometer in the evening, and find the two bulbs pretty much alike in their reading, while the sky is clear, even should there be no rain, there will certainly be a copious deposit of dew. After sunset, all bodies on the surface of the earth, after having been heated by the sun during the day, radiate or give off their heat into space, get cold, and soon reach the dew-point, when they become covered with moisture, provided there are no clouds or other objects to check the dispersion of heat or reflect it back to the earth. If the temperature be low, the dew becomes hoar-frost. All gardeners know that it may be produced without the thermometer falling to the freezing-point. The reason is, that dew evaporates so rapidly that it deprives itself of a considerable amount of heat, so as to congeal into minute needles the water remaining on the plant or other bodies.

"But the frosts of spring and autumn, which are so injurious, proceed generally, not from the congelation of moisture deposited from the atmosphere, but from the congelation of their own proper moisture, which forms part of their composition by the radiation of their temperature, caused by the nocturnal radiation which, in other cases, produces dew or hoar-frost. Now all this may be known beforehand by carefully noting the hygrometer, and then we can prevent or diminish the deposit of dew by covering our plants with a screen of some kind."

THE BEST MANURE to mingle with the clay loam and sand in preparing soil for potting of roses, fuchsias, geraniums, etc., is clear, well-rotted cow dung If well and thoroughly decayed, one part to every three may be safely used.

EDITOR'S TABLE.

To Contributors and Others.—Address all Communications, for the Editorial and Publishing Departments, to F. W. Woodward, 37 Park Row, New York.

POULTRY.

We have recently received a letter from J. C. G., of Granville County, N. C., wherein the writer inquires whether the accuracy of the statement made by our correspondent "E," touching the weights of certain Brahma fowls to which he alluded in our August number, may be fully confided in. In answer, we beg leave to reply in the affirmative. And it may not be amiss to add that we had the pleasure, last fall, of seeing the Brahma cock to which our correspondent referred, and we have no hesitation in expressing our belief that he was the finest bird of his species that we have ever seen.

Having submitted J. C. G.'s note of inquiry to our correspondent, the following note has been received in reply:

"F. W. Woodward, Esq.: *Dear Sir*—Permit me to acknowledge your kindness in submitting for my perusal the letter of Mr. J. C. G., of North Carolina. There is no question as to the accuracy of the weights of the Brahmas as stated by me in the August number of the Horticulturist; and I am glad to have it in my power to give an extract of a letter from an intelligent and impartial gentleman, referring to the cock to which allusion was made, which is a substantial indorsement of all I have stated. Mr. E. C. Comey, of Boston, writing under date of April 4, 1868, says:

"'I have constantly tried to improve my stock of Brahmas (fowls which I admire beyond all others), without regard to cost or labor, for the past six or seven years, and have traveled a great many miles in search of the finest specimens of this breed, but never found a bird that came up to my requirements and ideas until I saw your Brahma cock "Autocrat." I assure you that in him I was delighted to find what I have contended could be produced, while others said it was impossible,—that is, to have a *very large* Brahma, say 14 or 15 lbs. weight, and to have him handsome. Now, I am frank to admit that Autocrat is the largest in size, the most perfect in color, the most symmetrical in proportions, with the finest-shaped head and smallest pea comb of any Brahma cock that I have ever seen, and I would be willing to bet that his equal can not be found in the United States.'

"You can say to your North Carolina correspondent, that any communication which he may desire to make to me, will reach its destination if addressed to your care. E."

F. W. Woodward, Esq.: *Dear Sir*—My highly valued friend "P. W.," of Mass., having contributed to your September number an article upon the characteristics and merits of one of the popular breeds of French fowls—the Houdans—has intimated the wish that I would call attention to another of the foreign varieties which takes a foremost rank in France—I refer to the "La Flèche." Though the writer has never had any of this distinctive variety under his personal supervision, he has had the opportunity of seeing them frequently upon the yards of his friends, and of learning something of their excellences from various writers upon Poultry, and from what he

has seen and learned, he is satisfied that the La Flèche will prove a valuable acquisition to our poultry yards. A gentleman who is breeding these birds this season, in a recent letter says of them: "The chicks from my La Flèche fowls are rapid growers, are quiet in their habits, and are generally strong and healthy, and I am of the opinion that they will bear confinement as well as most of our domestic fowls. The La Flèche attains to greater size, when mature, than either of the other French breeds which I have imported."

As most of your readers are doubtless unfamiliar with this peculiar variety (as it has only been about two years since they were first imported into this country), it may not be amiss to describe them somewhat critically. The cocks, in plumage, are of a brilliant metallic black color, with long and broad backs and broad full breasts; combs branching and antler-like, like two horns pointing straight up; earlobes large and white; necks rather long, with thick but short hackles; thighs long and strong, and legs black or slate color, and without crests.

M. Simier, a French writer of acknowledged ability and of much experience, has recently written a pamphlet setting forth the specific merits of the different breeds of French poultry, and arrives at the conclusion that "for eggs and the table the La Flèche fowls deserve to rank with the very best." He says: "To this breed do we owe the grand poulardes so renowned, so remarkable by the delicacy of their flesh. They are better known as 'poulardes du Mans,' but they are all bought first on the market of La Flèche. It is a large upstanding bird, high on the legs, and well shaped; of a raven-black plumage, and possessing an abundance of white and delicate meat, and is singularly adapted for table purposes, from the ease with which it is fattened. It is not an early layer, the pullet being generally from six to seven months old when she begins to lay; she is not a winter layer; but when she begins, (generally about February), she gives an uninterrupted supply of fine eggs until the moulting season sets in. She hardly ever sits, and when she does, is a poor mother."

The London *Cottage Gardener*, in referring to the La Flèche fowls which have been imported into England, says that the cocks are subject to sudden fits of illness, from which the hens seem to be exempt. The hens are said to be layers of very large white eggs, but as table birds, are not esteemed so highly as the Dorkings. The English epicures have an idea that no fowl with dark or yellow colored legs is as delicate in flesh as those with white legs; hence their preference for Dorkings; and this prejudice, I know, has followers to some extent in this country. Without attempting to enter the lists upon one side or the other of this question, the writer will conclude with the remark, that any young and well-fatted bird of any of the popular varieties is quite good enough for him.

E.

ROMEYN'S SEEDLING STRAWBERRY is attracting some attention, and bids fair to take a place among the approved varieties. It was originated by William H. Romeyn, of Kingston, N. Y.; is a cross between the Wilson and the Triomphe de Gand, and has some resemblance to the Austin. It grows vigorously; the foliage is abundant and strong, and the plants do not require frequent re-setting. In Mr. Romeyn's garden are some specimens six years old, and they produced largely during the past season. Another advantage is in lateness, the Romeyn yielding good fruit ten days after the older varieties have ceased to bear. Charles Downing speaks favorably of the Romeyn. Valentine Burgeoin, of Kingston, a very successful cultivator, who has nearly all of the approved varieties, and grows largely for the market, says he gives preference to the Romeyn because he has found that it sells as well as the Triomphe, and bears better and with more certainty; and Henry H. Reynolds, cashier of the

State of New York National Bank, says that after a fair trial of all the favorite sorts, he has found none containing so many excellent qualities as the Romeyn.

PRESIDENT WILDER STRAWBERRY. — The following description of a new strawberry bearing the name of one of our most valued horticulturists, we take from the *American Journal of Horticulture*, which states it as the "substance settled upon by the Fruit Committee of the Massachusetts Horticultural Society."

"The plant is hardy, robust, vigorous, and very productive. The foliage is handsome and well developed; leaf, dark green, roundish, obovate, deeply serrated, of great substance, with stiff, short foot-stalks, and stands the extremes of heat and cold without injury. The flower-stalk is stiff and erect, the flowers perfect. The fruit is large, some specimens attaining to more than five inches in circumference; and many berries this year weighed more than an ounce avoirdupois each. Their color is brilliant crimson scarlet; form, obtusely conical; the flesh rosy white, very juicy, but sufficiently firm for market; flavor, rich and sprightly, inclining to sweet, with a distinct aroma of the Alpine or wood strawberry; seeds, small; season, late.

"This variety was produced in 1861 by Mr. Marshall P. Wilder, from artificial impregnation of Hovey's Seedling with La Constante."

WATCHING, as we do eagerly, every project for advancing horticulture in all its departments, we look especially to an improved *education for young gardeners* as one of the most powerful means of furthering the cause. Our profession is not a series of dead rules or authoritative laws, to be once mastered, and then known or forgotten for evermore. Neither is it, or ought it to be, an erratic series of progressions and restings, alternating with each other,—now marching onward under the banner of a Knight, a Loudon, or a Lindley, and anon standing still because no such leader appears. No; such is not the road to the highest perfection. Every individual worker in the wide field of horticulture should feel that his path must be one of progress from good to better, from better to best. Because others have labored, can be no excuse for us resting upon their labors, but is a legitimate reason why we should enter *into* their labors, and carry them forward to a higher level. The highest attainments of all who have gone before us should be our starting-point on the highway of endless progression. Each worker as he delegates his work to others should give the parting admonition—"Not as though I had already attained, or were already perfect," but you follow after, if it be that you apprehend that perfection in art and practice that I have failed to reach. To forget, so far as to rest in them, the things which are behind, and to reach forward to those that are before, must be our watchword. Always learning and never coming to the full knowledge of the truth, must express the state of our intellect and the purpose of our lives, if the garland of success is to enwreath our brows, and the grace of humility to adorn our characters.

Between the fathomless mysteries of plant-life on the one hand, the immeasurable capacities of intellectual life on the other, and the difficulties inseparable to the control of human life in its relation to both, there is work enough to tax the strongest intellect and to try the soundest heart. But it is only by rising to the dignity and grandeur of our work that it can be properly done. While, therefore, fostering and developing to the utmost the marvelous capabilities of vegetable life, let us also carefully cultivate the intellectual life within and around us. Only thus can the progress of gardening become real, constant, cumulative. Now, it is by far too much a thing of fits and starts. One great man acquires eminence, and it is years before the rank and file reach his high standard. They first oppose, then

ridicule, then examine, then adopt, and finally rest at his point of progress. How all this happens, and how even eminence itself becomes a drag on the chariot wheels of progress, is most eloquently pointed out by a modern author in the following pregnant words:

"It is true that an original man is persecuted in his lifetime and idolized after his death; but it is a less familiar truth that the posthumous idolaters are the legitimate successors and representatives of the cotemporary persecutors. The glory of the original man is this, that he does not take his virtues and his views of things at second-hand, but draws wisdom fresh from Nature, and from the inspiration within him. To the majority in every age, —that is, to the superficial and the feeble— such originality is alarming, perplexing, and fatiguing. They unite to crush the innovator; but it may be that by his own energy, and by the assistance of his followers, he is too strong for them. Gradually, about the close of his career, or, it may be, after it, they are compelled to withdraw their opposition, and to imitate the man whom they had denounced. They are compelled to do that which is most frightful to them—to abandon their routine. And then there occurs to them a thought which brings inexpressible relief. Out of the example of the original man they can make a new routine; they may imitate him in everything except his originality, for one routine is as easy to pace as another. What they dread is the necessity of originating, the fatigue of being really alive, and thus the second half of the original man's destiny is really worse than the first, and his failure is written more legibly in the blind veneration of succeeding ages than in the blind hostility of his own. He broke the chains by which men were bound; he threw open to them the doors leading into the boundless freedom of Nature and of truth. But in the next generation he is idolized, and Nature and truth as much forgotten as ever. If he could return to earth he would find that the crowbars and files with which he had made his way out of the prison house have been forged into the bolts and chains of a new prison, called by his own name. And who are those who idolize his memory? Who are found building his sepulcher? Precisely the same party who resisted his reform; those who are born for routine, and can accommodate themselves to everything but freedom; those who in clinging to the wisdom of the past suppose they love wisdom, but in fact love only the past; and love the past only because they hate the living present; those, in a word, and slightly to change the language of the eloquent author, who set up the inertia of the dead past in opposition to the life and power of the actual present."

It would seem impertinent to attempt to add to the forcibleness of these words. They are applicable to men in all ranks of life, but especially so to gardeners, who have too often attempted to bind the vigorous freedom of vegetable and intellectual life by the narrow ties of red tape, and the green withes of a sunless routine.—*Gardeners' Chronicle.*

The Original Scuppernong.—J. Van Buren writes to the *Southern Cultivator* that "The original vine of the Scuppernong Grape is growing on Roanoke Island, and was first discovered by the colony landing with Sir Walter Raleigh in 1654 or 1655, and is probably the oldest vine known at the present day." Mr. Van Buren still considers his estimate of the Scuppernong producing 1,500 to 2,000 gallons of wine to an acre, as a fair and not an extravagant one, where care and proper attention and cultivation are bestowed. We would here give one word of advice to those about to plant this variety, which is, not to use any stable manure, but simply rich earth from decayed leaves and other vegetation.

Those who expect this vine to grow vigorously in an old broomsedge field, and

yield an abundant crop of fruit, will find their expectations to end in disappointment. And again: it will not do to plant in too rich a soil, for then its growth is too rampant for years, until it exhausts the soil, before it will produce fruit abundantly. Land that will bring 20 to 25 bushels of corn per acre is sufficiently rich for this grape—not low and wet, but dry, and inclined to sandy.

Our readers will remember that this grape, so far as well tested, is only valuable in the South.

Wash for the Peach Worm.—R. J. Moses, in the *Southern Cultivator*, says: "After taking out the worm from the peach tree, make a solution (mixed with a little cow dung or clay) of the Plant Destroyer, which is a chemical result of petroleum, and can be had at 113 Elizabeth St., New York. Wash the trunks of the trees with this, and the fly will cease to deposit the egg by which the worm is produced. A yearly application of this solution will, I think, effectually rid you of the peach worm."

This present month is a suitable time to examine peach-trees, and to destroy the worm—and it is a labor and duty in peach growing essential to success. If any of our readers should use the wash above named, we hope they will report to us of results; but we advise them not to trust to it without looking over their trees next May or June.

Glass-Houses.—Those of our readers who intend to erect houses for use the coming winter, or to be planted with vines or trees the following spring, should have commenced operations, so that everything may be in readiness before the approach of frost. Scarcely any lover of plants can dispense with protection of some sort for his half hardy pets, which have added so much to his pleasure and the gratification of his visitors during the growing season, and which must otherwise succumb to the winter's frost. To those who can not afford a more expensive structure, and who are willing to give to it a very small amount of attention, a cold pit has many advantages over the usual practice of putting plants in a cellar.

Such a pit should be permanent in its character, and located in a spot easy of access to the house, that it may receive proper attention during the winter. A convenient size, and one sufficient for an ordinary garden, would be ten feet long by five wide, varied somewhat from these dimensions to suit size of glass in sashes. The pit should be excavated four feet and a half below the surface, and a hollow wall of brick built up to one foot above the surface. Six inches in depth of coarse gravel should be placed in the bottom, on which the pots containing the plants rest. Shelves may be also placed around the sides for the smaller plants. The wall above the ground should be "banked up" to within three inches of the top, and sodded.

Double sashes, we have found, give great protection, and save attention in covering the pit. The bars of these sashes are "rabbited" on both sides and double glazed, thus inclosing a stratum of air affording a good non-conductor of heat from within, or cold from without the pit. The plants when first put in the pit will require to be watered, and the sashes opened during the day, until cold weather. But little water is required during winter, as the plants are in a state of rest, and partial dryness at the roots is of advantage. In very severe weather straw mats would be required, but the double glass would keep out 10 to 15 degrees of frost. Some ventilation must be given on mild days, when the sun is bright, to carry off the dampness, but in dull cold weather all should be kept closed up. Camellias and azaleas do admirably in such quarters, and can be brought into the dwelling and flowered at any time during the winter. Many plants grow with surprising luxuri-

ance after remaining dormant in such quarters all winter. As the season advances, in the spring ventilation must be given during the day, closing the sashes at night until the weather becomes mild, when they may be gradually removed altogether.

We have never advocated the erection of cheap structures for growing plants, unless they are intended for mere temporary use; or if the owner is willing to repair them frequently to an extent of an entire renewal in from six to ten years.

The general plan of horticultural structures may be as perfect as possible, but if the details are not well carried out, and especially if the workmanship be not good, they will prove a source of never-ending vexation and expense. Insecure foundations, ill-fitting doors and ventilators, imperfect glazing and inferior workmanship of every description, are evils that skillful gardeners have to contend with, and upon whom the consequences of such defects usually fall, when they should be placed upon the shoulders of the constructor.

Methods for building cheap graperies and green-houses have often been described, and we find many of these imperfect and temporary structures scattered through the country. Such buildings may be cheap as respects their first cost, but their durability is a question which should enter into the calculations of their builders, as well as the consideration of the original outlay. After a year or two we find them with open joints, leaky roofs, and decaying foundations. The inferior and temporary character of materials and workmanship is often a source of serious loss to their owners, and every building of this description demonstrates the mistaken and short-sighted economy of its projector. It is much wiser and truer economy to expend at the outset a sufficient amount of money and care to make the structure permanent, and to obviate the necessity of constant repairs. Experience has taught us that if they are well and substantially built, these structures will endure for twenty years with very few repairs except an occasional coat of paint. It need not be demonstrated that the profit and gratification to be derived from a well-built house far exceed those accruing from a cheap and imperfect one, with escapes for the heat in winter, and inlets for cold air and driving snow and rain.

OLEANDERS.—In our rambles about the country we are frequently asked as to the best time for cutting in or pruning oleanders; to which we reply, cut them back just as soon as they have flowered. They will then push freely and bloom next season again. We have occasionally known them to bloom late in the season when pruned back in the spring, or when first brought out from cellar or store room, where oleander plants are generally kept by those growing and admiring them and who have no green or glass houses. When cutting back, do so with reference to the leaving of some young shoots, and also of dormant indistinct buds. A little yearly pruning back and of shortening in side branches would convert many a tall, stern, ragged-headed oleander into a round, compact, beautiful-shaped plant—of half its former height, but double its breadth.

HAVING noticed an inquiry some time since in the *Tribune*, which was made at the Farmers' Club, New York, and having pretty extensively examined Virginia on the subject of that inquiry, it occurred to me that some of your readers might be interested in my investigations.

The inquiry was, "Can the Catawba grape be successfully grown in Virginia?"

I have seen that vine in my travels here in all its stages of growth, and several times during its fruiting season. I have never noticed any mildew, and hardly any rot. There are vines on the place on which I am now staying, in fruit,—the clusters perfect as any I ever saw, the leaf perfect as in June. The wine from this grape was highly esteemed here during the

war, and one large vineyard made a great deal of money. I think I can say, then, that the Catawba grape, as well as all our new varieties, may be successfully grown in this neighborhood—which is about twenty miles from Washington, and near the Orange and Alexandria Railroad. It is a healthy country, abounding in springs of soft water. Good grape lands sell at from $10 to $25 per acre. The people are friendly, and desire Northern emigration. The valley lands grow grass, wheat, corn, etc. STEUBEN.

CENTERVILLE, FAIRFAX CO., VA., *Sept.* 5, 1868.

HYBRIDIZING THE GRAPE.—From a report, published in the *Canada Farmer*, of Hon. Wm. H. Mills, President of the Fruit-Growers' Association of Canada, we extract the following, showing the attention our Canadian brothers are giving toward producing new varieties of the grape and other fruits.

"Mr. William Saunders, of London, Ontario, has, with much skill and labor, produced this season the following results in hybridizing, and has kindly permitted me to lay them before you.

FEMALE OR BEARING VINE.

	Berries.
Clinton—with Syrian pollen	set 18
" " Muscat Hamburgh, 2 bunches.	" 0
" " 1 failed, the other set	" 1
" " Buckland Sweetwater	" 30
" " Muscat d'Avut	" 8
" " Black Hamburgh	" 5
" " Grizzly Frontignan—failed	" 0
" " Black do. do.	" 0
" " Chasselas Musque	" 5
" " Royal Muscadine	" 22
" " Victoria Hamburgh	" 19
" " Rose Chasselas	" 13
Total	121

OF GOOSEBERRIES.

Houghton's Seedling with Warrington pollen.	set 6
" " " Roaring Lion	" 2
" " " White Smith	" 1
" " " Brown Girl	" 5
" " " Ashton's Seedling	" 2
" " " Crown Bob—failed.	" 0
Total	16

"Eight or ten flowers were operated on in each case, excepting Crown Bob, which was used on five only. He also operated on six or seven flowers of the Philadelphia Raspberry, with the Brinckle's Orange; such were his results. Mine were as follows: I was unable to fertilize the Delaware with the either the Black or Muscat Hamburghs, while one took readily with the Diana.

Males.	*Females.*	*Clusters.*	*Berries.*
Black Hamburgh	Delaware	2	set 0
Muscat do.	do.	1	" 0
Chasselas de Fontainebleau.	do.	1	" 6
Rose Chasselas	do.	1	" 1
" "	Diana	1	" 13
Chasselas de Fontainebleau.	do.	1	" 24
" "	Rebecca	1	" 0
" "	Isabella	1	" 0
Muscat Hamburgh	Diana	1	" 26
Bowood Muscat	Rogers' No. 4	1	" 27
Delaware	do. do.	1	" 17
	Total		114
Mr. Saunders' total			121—235

"So slow and tedious is the process, it will be observed that only a limited amount of labor can be performed by one person during the time of flowering. Mr. Saunders exceeds me by seven berries. Now to test the quality of only a portion of these which may survive the vicissitudes of germination and other mishaps, it will take from six to eight years."

AMARYLLIS SEED SOWING.—The seed should be gathered when ripe, and we prefer to sow it at once in pots well drained, and filled to within an inch of the rim with a compost of two thirds rich yellow loam, and one third sandy peat. We then put on a little of the same kind of soil, but finer and dry, make the surface even by patting it with the bottom of a flower-pot, scatter the seed over it rather thinly, and cover with a quarter of an inch of fine soil, the least possible depth being left to hold water. The pot is then placed on a shelf in the stove, and it is not watered until the beginning of February, when the soil is moistened by a gentle watering. We then plunge the pots in a hot-bed and encourage growth, keeping the soil moist. The pot remains in the hot-bed as long as there is any heat, and the soil is preserved in a moist condition, and a good heat is given so as to keep the young plants in a growing state as long as possible, but giving a short rest by diminishing the supply of water in November, December, and Jan-

uary. In February they are again placed in a hot-bed, and forwarded in a brisk heat with plenty of moisture, and when they have made a growth, which they will do by June, we pot them off singly in pots about four times the diameter of the bulbs, and so that the bulbs are buried to the neck. They are again returned to the hot-bed, giving water abundantly and atmospheric moisture, keeping them well supplied with moisture up to October, when the supply is diminished; but so long as there is foliage, give enough water to keep it from flagging. The pots are top-dressed in January, removing the old soil down to the roots, and it is replaced with rich rather strong loam from rotted turves. Do not disturb the roots or interfere with the ball, but if the drainage be defective rectify it. Plunge the pots in a hot-bed, encourage growth with water as required and atmospheric moisture, and in May shift the plants into a larger size of pot, not disturbing the roots or ball beyond removing the crocks and any soil not adhering to the roots. Return the plants to the hot-bed and keep them growing as long as they appear disposed to do so, giving a good supply of water; and when growth ceases, remove them from the hot-bed by degrees and set them on a shelf in the full sun in the stove, giving water so as to prevent the leaves flagging, diminishing it, however, when these show signs going off, and keep the soil rather dry during the winter. These plants by the third year will have strong bulbs for flowering, and the treatment is then the same as for old plants. If inconvenient to sow the seed when ripe, it may be kept in a dry place and sown early in February. We have kept it in silver sand in a flower-pot in a stove until February, and we can not say which is the better plan; both proved good.—*Cottage Gardener.*

Chrysanthemums as they come into flower require plenty of water and liquid manure to produce fine blooms.

Clean Up.—Not alone should the careful horticulturist clean his garden and grounds of all noxious weeds and scattering litter, but he should clean up in the roadway fronting him, whether on his own or neighbors' side. It is not specially creditable to any one to see the roadway in front of his grounds abounding in weeds or scattering litter, brush, old rails, or rotten posts, etc.; and we never enter such without regret that the owner could not be supplied with just one pair of glasses to see himself as others see him. Aside from appearance, it is a matter of economy to clean the ground adjacent and in front, if possible, of all weeds, for, if left there, seeds will surely vegetate next season in your own grounds, causing you labor and annoyance.

Iowa Horticultural Report.—Our thanks are tendered to W. W. Beebe, Esq., of Dubuque, Iowa, for a copy of the Report of the Iowa Horticultural Society for 1867.

In plain practical matter of instruction in fruit and tree growing; in satisfactory evidence that Iowa is a good fruit-growing State, and an advice toward the best interests of horticulturists in the Western States, it is full to running over, and every fruit-grower in all the great West should obtain a copy of it if possible, and read it carefully. We congratulate the Secretary on having been enabled to gather so much of valuable matter in one little book, and thank the writers for the freedom and good sound sense they have displayed in giving expression to thought and judgment without any previous bias toward a fixed rule or practice.

A Good Time Coming for Nurserymen.—From all we can learn, there is a prospect of an extensive trade in all kinds of nursery stock the coming fall season, and those who are prepared to supply the demand, and have notified the public of their ability to do so, may hope to be well remunerated.

FALL TREE PLANTING.—The earlier in autumn that tree planting is performed the better, provided the wood has matured. It is not requisite that the leaf has fallen; but in transplanting, the leaf should be removed ere the tree is dug from the ground; keep the roots from drying cold winds or clear hot suns, and when setting spread them out regularly, and see that fine earth is next against each and every fiber; for where one root is laid against another without soil intervening, it is liable to dry and decay, and often destroy the whole tree. Do not pour water in among the roots at this time of year, but press and mingle the earth carefully with the hand and spreading fingers. Mound up around the tree earth about eight inches high, to assist it in retaining its upright position and also to carry off surplus water, for no matter how carefully the tree be planted, if water is permitted to stand around it and soak the roots from day to day, it may be expected to die.

BUY THE BEST.—It is hardly necessary for us to caution against, or repeat our advice in favor of, the purchase of any tree or vine simply because it is offered at a low price. The buyer should always remember that the "laborer is worthy of his hire," and that the grower of trees and plants for sale has no easy item of life; but if he pursues his profession with regard to sustaining a favorable reputation for integrity and honor, must give his own personal attention to it, and for that attention deserves and must receive a fair compensation. The purchaser of trees, therefore, should make his order, and then add, "Send me the best trees you can, and charge accordingly." One good, well-rooted, well-grown tree or vine is worth half a dozen club-footed, unripe wooded ones.

THE application of manure of whatever sort to orchard or vineyard should be in the autumn rather than spring. The rains and frosts of winter assist in disseminating and distributing it by dilution among the soil, and thus render it in condition to be absorbed by the roots early in spring, and by them applied in promoting an early and healthy vigorous growth. If the manure is slightly covered by shallow plowing, no evaporation or loss will take place; or if after the application of the manure a sowing of land plaster (gypsum) be made, it will retain any ammoniacal gases that would otherwise be lost.

BEANS.—I have grown for two years a variety of bean which should be cultivated in every garden, as I consider it superior to any snap bean in cultivation; and in the future shall cultivate no other. I refer to the Giant Wax Pole Bean. But as I may have pole beans on the brain, I send you some as a sample, and hope you will give your readers your opinion; for pet beans are like the last new vine or young crows,—every one thinks his own the whitest. AL FRESCO.

[The beans came safely to hand; we tried them, found them very superior in quality, and resolved to plant a large patch of them next season. Let our readers who are fond of beans make a note of this and secure seed in time. We presume every seed store has it for sale.—ED.]

NEW FRUITS.—From our exchanges we gather record of quite a number of fruits introduced for the first time to public notice. Of new seedling strawberries, one originating with Marshall P. Wilder is highly praised by some Boston pomologists. Another, under name of *Colfax* Strawberry, is introduced by Messrs. Purdy & Johnson, Palmyra, N. Y., as possessing every desirable requisite without a fault. The same gentlemen also introduce a Black Cap raspberry, under name of *Mammoth Cluster*, and claim it as the "best and most profitable raspberry ever brought before the public." The Cincinnati Horticultural Society have had shown at their

pleasant and interesting weekly meetings one or two seedling cherries, two seedling pears, and two or three seedling raspberries, which have been favorably spoken of by the committee as worthy of further trial.

"THERE is a tide in all things, which, taken," etc. Just now there seems to be a tide flowing toward the naming of new varieties of fruits after some prominent man of the times, no matter whether he is connected or interested in horticulture, politics, or religion. This may be all very well, but we confess we can not so understand it; and yet it may be right, for in all probability the newly introduced fruit will go into oblivion about as soon as the politician of the day. Naming a fruit or plant after some eminent horticulturist is well; but we confess, then, that if we were the horticulturist so to be commemorated, we should like to know that our name be attached to some fruit destined to record us favorably and perpetually in all sections. We should count it no credit to be attached by name to a fruit which could only be expected to live in the minds and gardens of our fellow-laborers until their fruiting it had shown them the object of the man who disseminated it. To our mind, it is better to give to each fruit a name that in its significance denotes some characteristic of the fruit, relative either to color, delicacy, productiveness, long keeping, etc., rather than the name of a person, no matter how deserving that person may be of remembrance. It certainly seems to us more in strict harmony with true principles, for then, on hearing or speaking it, the association would remain with the fruit or flower, rather than be carried to remembrance of a name that in reality has with it no significance.

PEACH-TREES should be carefully examined at this season, and the worm (*ægeria*) taken away from its harboring-place near the crown of the tree. Remove the earth a couple of inches deep, and observe any gummy or punctured spots; and then, ten to one, by cutting with a sharp knife, you will find a small white grub or worm that as yet has done but little or no material injury, but if left unmolested by the coming spring, would be found to have almost completely girdled the tree. Dig out the grub now—wash the wounds with soft soap to destroy any worms that the knife failed to reach by reason of oversight on the surface, then draw up the earth in mound form about one foot high close to the body, which mound, if leveled next April, will exhibit at once any worms which now have been left.

PERENNIALS.—This present (October) month is one of the best for transplanting and dividing perennial plants; and as flowering perennials are among the easiest cultivated in forming a flower garden, and abound in great diversity of foliage and color of flower, they should be freely planted in every garden. Prepare the ground by digging it fully one foot deep, and mingling—unless already rich—a quantity of well-decomposed manure or compost. Obtain the plants from a reliable dealer—order good strong roots—plant them carefully, and then spread a light covering of coarse straw manure, say two inches deep, over all for winter protection.

HARDY APPLES IN MINNESOTA.—In the transactions of the Hennepin County Horticultural Society, Minnesota, Peter M. Gideon, Esq., gives as his experience (and which is apparently concurred in by the Society), that the past winter was the most severe upon fruit-trees of any experienced. Among the apples that have stood best, the Crabs come first, next Duchess of Oldenburgh, followed by Wincsap, Blue Pearmain, and last, Red Astrachan, which has proved the most tender. The same authority sets hardy seedlings as ranging at about one in 40,000 capable of the same endurance as the varieties named.